PHONETICS
PHONETICS

- Articulatory
  - How sounds are produced
PHONETICS

- Articulatory
  - How sounds are produced
- Auditory
  - How sounds are perceived
PHONETICS

- Articulatory
  - How sounds are produced
- Auditory
  - How sounds are perceived
- Acoustic
  - Study of the sound waves produced
Articulatory Phonetics
Articulatory Phonetics

- How can it be applied?
  - Language teaching
  - Speech therapy
Auditory Phonetics

- How can it be applied?
  - Audiologist
Auditory Phonetics

- How can it be applied?
  - Audiologist
  - Dialectologist (Dialect perception)
    - Where is he from?

FIGURE 1. The six response alternatives in the categorization task (from Clopper & Pisoni, in press).
Auditory Phonetics

- How can it be applied?
  - Audiologist
  - Dialectologist (Dialect perception)
  - Psycholinguist (Categorical perception)
    - Do you hear “ta” or “da”?
Auditory Phonetics

- How can it be applied?
  - Audiologist
  - Dialectologist (Dialect perception)
  - Psycholinguist (Categorical perception)
  - Do you hear “ta” or “da”?
    - We can see small differences in light, color, tone, sound, smells. These are continuous
    - When it comes to speech perception it is categorical
Auditory Phonetics

- How can it be applied?
  - Audiologist
  - Dialectologist (Dialect perception)
  - Psycholinguist (Categorical perception)
  - Language acquisition (High amplitude sucking)
Acoustic Phonetics

- Visual representation of speech
Acoustic Phonetics

- Visual representation of speech
  - Allows precise measurements
  - Allows manipulation
    - Slow speech down
Acoustic Phonetics

- Visual representation of speech
  - Allows precise measurements
  - Allows manipulation
    - Slow speech down
    - Overlap sentences
Acoustic Phonetics

- Visual representation of speech
  - Allows precise measurements
  - Allows manipulation
    - Slow speech down
    - Overlap sentences
    - “ta” vs. “da” manipulation
Spectrographic Analysis

- Machine is spectrograph
- Output is spectrogram
- Free program is PRAAT (www.praat.org)
- Some great tutorials on how to read spectrograms: [here](#) and [here](#)
Spectrographic Analysis

- Waveform
- Spectrogram
Spectrographic Analysis

- What does it show you?
  - What the vowels are
Spectrographic Analysis

- What does it show you?
  - What the vowels are
  - Intensity (volume)
Spectrographic Analysis

- What does it show you?
  - What the vowels are
  - Intensity (volume)
  - Pitch
Spectrographic Analysis

- What does it show you?
  - What the vowels are
  - Intensity (volume)
  - Pitch
  - Duration
Spectrographic Analysis

- What does it show you?
  - What the vowels are
  - Intensity (volume)
  - Pitch
  - Duration
  - Type of consonant
What is spectrographic analysis used for?

- Speech therapy
- Forensic linguistics
  - Voice identification (Bin Laden, bomb threat)
  - Dialect recognition
- Developing tools
  - Text to speech
  - Voice commands
  - Artificial voices
  - Speech recognition
What is *spectrographic analysis* used for?

- Dialectology / Sociolinguistics
- Oral release in Utah
Other speech tools and websites

- Other speech manipulation systems: Audacity, the Speech Filing System
- Sammy: an interactive articulation visualization tool
- The dialectizer
- Text-to-speech systems: compare different systems here, and here
Jobs with Phonetics

Employer: https://www.google.com/

Title: Speech Data Evaluators
Rank: Speech Data Evaluators
Linguistic Field(s): Phonetics, Phonology, Semantics

As a Speech Data Evaluator and a native-level speaker of English, you will be part of a team based in an office location as listed above, processing large amounts of linguistic data and carrying out a number of tasks to improve the quality of Google’s speech synthesis and speech recognition in your own language.

This includes:
- Classifying and annotating linguistic data
- Transcription
- Labeling text for disambiguation, expansion, and text normalization

Job Description: Providing phonetic transcription of lexicon entries according to given standards and using in-house tools

Job Requirements:
- Native-level speaker of English (with good command of the standard dialect)
- Passion for language with good knowledge of orthography and grammar in the target language
- A degree in a language-related field such as linguistics, language teaching, translation, editing, writing, proofreading, or similar
- Keen interest in technology and computer-literate (should feel comfortable using in-house tools and should have an interest in current speech, mobile and online technology)
- Attention to detail and good organizational skills
Jobs with Phonetics

Employer: http://www.sensoryinc.com
Rank: Linguist
Linguistic Field(s): Phonetics

Seeking Linguist with interest in speech technology. Must be able to juggle multiple projects and priorities, and very organized with strong attention to detail. Must be a fast learner interested in phonetics, phonology and technical concepts. Must be comfortable with customer interaction.

Sensory offers an exciting opportunity at a growing technology company targeting consumer products with cutting edge speech recognition technologies and chips. Sensory is the leader in a rapidly expanding market for voice user interfaces in consumer electronics. Notable Sensory specialties are voice interfaces for mobile communications, entertainment robotics, home automation and automotive

Primary Duties/Responsibilities:
- Develop, tune and test speaker-independent recognition sets and speech prompts for customer projects
- Recruit and record internal participants for tuning and testing of speech recognition sets for customer and internal projects
- Recruit participants for QA testing of tuned recognition sets for customer and internal projects.
- Review recognition vocabulary lexical properties and menu structure for optimal customer product performance.
- Interact with customers to provide guidance on dialogue design and recognition set makeup for optimal speech recognition success rate

Requirements and Preferences:
- B.A./B.S. in Linguistics required; M.A in Linguistics preferred
- 1-5 years total job experience with demonstrated focus in linguistics required
- Excellent understanding of phonological and phonetic concepts required
- Experience using tools such as Audition, Peak, Sound Forge, or Praat preferred
- Fluency in at least one foreign language preferred
Employer: http://www.appenbutlerhill.com

Job Location: Washington, USA

Title: Bulgarian Phonetician - TTS Voice

Rank: Linguist

Position Summary:
Support of designing scripts for recordings sessions and building up TTS voice for Bulgarian.

Key Responsibilities:
- Design scripts
- Assist voice builder
- Analyze recorded data
- Phonetic check of the whole material
- Segmentation labeling check

Job Description:
Qualifications/Summary of Experience:
- Linguists with background in phonetics
- B.A. in linguistics
- Native or near-native speakers
- Excellent knowledge of target language phonetics and phonology

Required Knowledge, Skills, and Abilities:
- Expertise in phonetic check (IPA and/or SAMPA alphabet)
- Experience in acoustic analysis and acoustic tools usage desired